

WHAT IS CLAIMED IS:

1. A workflow management system for automating a business process, comprising:
 - a host computer that controls the system;
 - an administrator that prepares for automating the business process;
 - a process designer that creates and models the flows and properties of the business process;
 - a database that compiles information on the administrative steps and properties of the business process;
 - a process engine that executes and handles the business process based on the information on the administrative steps and the flows and properties of the business process;
 - a web client; and
 - an application program that can be used for the business process.
2. The workflow management system of claim 1, wherein the administrator further comprises:
 - an organization manager that can create, delete and maintain a department;
 - a role/group manager that can create, delete and maintain a role and a user group;
 - an authority manager that can create, delete and maintain authorities to access the business process and the application program and can allocate the authorities to the role, the group and the organization member;

a folder manager that can create, delete and maintain a folder.

3. The workflow management system of claim 2, further comprising
an object manager, wherein the object manager interfaces the administrator
with the database.

4. The workflow management system of claim 3, wherein the
database further comprises:

an organization database;
authority database; and
a folder database.

5. The workflow management system of claim 1, wherein the
process designer comprises:

a graphic designer that can create and design an activity and a business
process using a graphic interface; and

a property designer that can define an activity to be executed in the
business process.

6. The workflow management system of claim 5, wherein the
processor designer further comprises an object manager that interfaces the
processor designer with the database.

7. The workflow management system of claim 6, wherein the

database comprises:

a process definition folder that contains information related to the business process modeling;

a data folder that contains data generated by the business process execution; and

an organization folder.

8. The workflow management system of claim 1, wherein the web client further comprises:

a worklist handler;

a workitem handler; and

a process monitor.

9. The workflow management system of claim 8, wherein the worklist handler maintains a work list for a user.

10. The workflow management system of claim 9, wherein the workitem handler supports the business process execution.

11. The workflow management system of claim 10, wherein the process monitor checks the status of business process.

12. The workflow management system of claim 11, wherein the process monitor further check history of the business process and current

business process.

13. The workflow management system of claim 12, wherein the process monitor further monitors the resource utilization.

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14. The workflow management system of claim 2, wherein the organization manager further creates, deletes and maintains relationships between the departments, ranks and information of the members in the department.

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15. The workflow management system of claim 14, wherein the organization manager further registers the members' identification.

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16. The workflow management system of claim 2, wherein the role/group manager can further allocate the member to the role and the user group.

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17. The workflow management system of claim 2, wherein the authority manager can allocate the authorities to the role, the group and the organization member.

19. The workflow management system of claim 5, wherein the property designer can allocate the activity to a participant.

20. The workflow management system of claim 5, wherein the property designer can set up a business rule.

21. The workflow management system of claim 20, wherein the business rule includes terms, conditions and a transition path after completing the activity.

22. The workflow management system of claim 5, wherein the process designer further comprises a check-out table.

23. The workflow management system of claim 22, wherein the check-out table contains information on a process model currently checked-out by a user.

24. The workflow management system of claim 23, wherein the system keep a currently checked-out process from being checked-out again by referring to the check-out table.

25. The workflow management system of claim 1, wherein the process engine comprises:

an interface agent that can interchange with other process engines information on status of the business process;

a request manager that receives requests from a user, directs the process engine to handle the requests, and returns results to the user;

a dispatcher that retrieves and executes the requests and stores results
in the database;

a scheduler;

a security manager that controls the certification process with the
5 certification server outside;

a database broker that interfaces with the process engine and the
database.

26. The workflow management system of claim 25, wherein the
10 activities handled by the process engine comprise states of:

initial;

waiting;

dead;

running;

15 suspended;

complete;

terminated;

error; and

overdue.

20 27. The workflow management system of claim 25, wherein the
scheduler manages a deadline activity and a wait activity.

28. The workflow management system of claim 25, wherein the

security manager further encodes and decodes information.

29. The workflow management system of claim 26, wherein the activities transits among the states according to a business rule.

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30. The workflow management system of claim 26, wherein the process engine controls the workflow using a transition count in order to keep a consistency of the business process transit.

31. The workflow management system of claim 30, wherein the process engine sets to zero the transition counts of all the transitions that can be processed in a forward direction from an activity, when the activity is started.

32. The workflow management system of claim 31, wherein the process engine further sets to one the transition counts of all the transitions that may stem from the activity, when the activity is completed.

33. A method for automating a business process, comprising steps of:
modeling the business process;
designing the business process;
compiling the business process in a database; and
executing the business process; and
monitoring the business process.

34. The method of claim 33, wherein the step of modeling the business process further comprises:

- generating an organization chart;
- creating a role; and
- allocating an authority to the role.

35. The method of claim 33, wherein the step of modeling the business process further comprises:

- generating an organization chart;
- creating a group of human resources; and
- allocating an authority to the group of human resources.

36. The method of claim 33, wherein the step of designing a process further comprises:

- identifying an activity to be executed; and
- allocating a property on the activity.

37. The method of claim 36, wherein the activity comprises:

- a start activity that starts a process;
- a normal activity that involves an intervention by a participant;
- a wait activity;
- a mail activity;
- a SQL activity that accesses an application database;
- a sub-process activity that comprises a plurality of separate activities;

an agent activity that automatically activates a program;
a connector activity; and
an end activity that represents an end of the process.

5 38. The method of claim 36, wherein the property comprises:
a participant that describes an individual that executes the activity;
an application;
a post-condition that determines when the activity is completed;
a schedule that describes planning of the activity;
10 a deadline;
a sub-process that describes a location and an option of the sub-process
activity;
a parameter that defines a value necessary for executing a program in
the agent activity;
15 a mail-to that determines the recipient of e-mail in the mail activity;
a mail content that represent the contents of e-mail in the mail activity;
a general information that shows the names and the descriptions of the
activity;
a transition condition that represents conditions for an input transition
20 and an output transition; and
an icon.

39. The method of claim 36, wherein the participant can comprise one
of or any combination of a user, a department and the role.

40. The method of claim 39, wherein the participant can be a manager of the participant.

5 41. The method of claim 39, wherein the participant can be a peer of the participant.

42. The method of claim 39, wherein the participant can be a department of the participant.

10 43. The method of claim 39, wherein activity is allocated based on the workload of the participant.